

Body Worn Camera & Digital Evidence Management System (DEMS) Recommendation Appendix

Appendix A – Marketplace Research and Vendor Selection

This section contains a summary of the body worn camera and DEMS vendors researched as part of this comprehensive evaluation.

Marketplace Research

Comprehensive research was done to analyze the body worn camera marketplace. Email inquiries were sent out to a variety of vendors in this space to gauge their interest in allowing the Department to host an 8 week trial. Once the vendors were identified, requirements for the trial were provided to 6 body-worn camera vendors. After further analysis of the vendors, four were chosen who met the final specifications.

Body worn camera vendors

Taser

Taser offers two camera solutions in the marketplace: The Axon Flex and Axon Body. The Axon Flex provides a comprehensive assortment of mounts and clips so that the camera can be mounted on the epaulet, collar, glasses, or even on a ball cap. The Axon Body can only be worn center mass and competes with similar products offered by other vendors in the marketplace. Each solution is lightweight, durable, and easy to use. These cameras feature a video buffer that constantly captures video so that when the record button is triggered, the prior 30 seconds of action are recorded giving invaluable context to the recordings captured with this solution.

VieVu

When it comes to ease of use, no other camera solution does a better job. VieVu offers a center mass worn camera called the L3, which begins recording as soon as you slide a clip down revealing the camera lens. The L3 is lightweight, easy to secure to the officer's vest, and rugged enough to take a beating in the field.

MPH

The MPH Muvi was the smallest camera that was evaluated. This camera featured a remote control that allowed for covert enabling of the device to capture pictures as well as video. This camera also offered a multitude of mounting options.

Wolfcom

Wolfcom offers a camera solution that can capture video, pictures, infrared video, as well as double as a radio microphone. Their mission is to place as much technology at the fingertips of an officer as possible without sacrificing performance.

Digital Evidence Management System (DEMS) vendors

Taser's Evidence.com

Evidence.com is a cloud-based storage system where digital evidence that is uploaded to this solution could be accessed from anywhere at any time as long as an internet connection were available. This solution can grow on demand as needed if storage needs change.

Veripic

Veripic offers a standard in-house server/client solution for digital evidence management. What this means is that the data would be stored on our network and be supported by internal IT staff resources. The primary feature of this solution is that it is less of a security concern than a cloud-based solution as internal IT resources would have more control over the data because it would be physically located on our secure network. The algorithm and hash values used to encrypt the data in this solution are some of the best in the industry.

Appendix B – End-User Debrief Comments

An end-user debrief was conducted on 9/30/13. During this open discussion, feedback and opinions were solicited from the group of testers. Comments are summarized to provide a general overview of what was shared about each vendor.

Body Worn Camera Results

Vendor	Strengths	Weaknesses
MPH	<ol style="list-style-type: none">1. Day video2. Secure clip3. Remote control4. Video playback5. Power button	<ol style="list-style-type: none">1. Night video2. Audio3. Battery life4. Sleep mode5. Recording size6. LED lights too bright
Wolfcom	<ol style="list-style-type: none">1. Field of view2. Video and audio3. Playback ease4. Picture quality5. GPS/time location6. Radio mike7. Battery8. Covert9. Versatile	<ol style="list-style-type: none">1. Push to talk button2. Mounting clip3. Too many features4. Better video quality than what eye can see5. On/off button sequence
VieVu	<ol style="list-style-type: none">1. Ease of use2. Intuitive3. Audio quality4. Size (low profile)5. Clip	<ol style="list-style-type: none">1. Field of view2. Inadvertent recordings3. Green record light too bright4. Night view5. No in-field playback
Taser	<ol style="list-style-type: none">1. Excellent field of view, video, and audio2. Most versatile mounts3. Camera app for iPhone rated high4. Plug and go download5. 30 second tone was covert6. Pre-buffer could be a life-saver7. Easy to turn off and on8. Durable9. Could undock and capture surveillance10. Immediate playback11. Stable video capture	<ol style="list-style-type: none">1. Glasses mount2. Clip that holds the wire mounted to the battery broke3. Clip on back of the battery4. Extra wire was cumbersome5. Chops video into segments

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DEMS Results

Vendor	Strengths	Weaknesses
Veripic	Tagging video with a category and case number	Clunky user experience Upload time License allows limited simultaneous viewing
Evidence.com	Tagging video with a category and case number Easy to search and find data Just dock and go Phone app integration	If not using FLEX or BODY, then you have to physically be there

Appendix C – Survey Results

This section uses charts to summarize the survey results captured during the evaluation. Taser and VieVu ranked the highest for body worn cameras and Evidence.com ranked highest for DEMS.

For body worn cameras, twelve categories were measured on a scale of 1-5, with 5 being the highest rating. A total of 49 surveys were filled out during the trial.

Chart 1: Body Worn Camera Summary Results

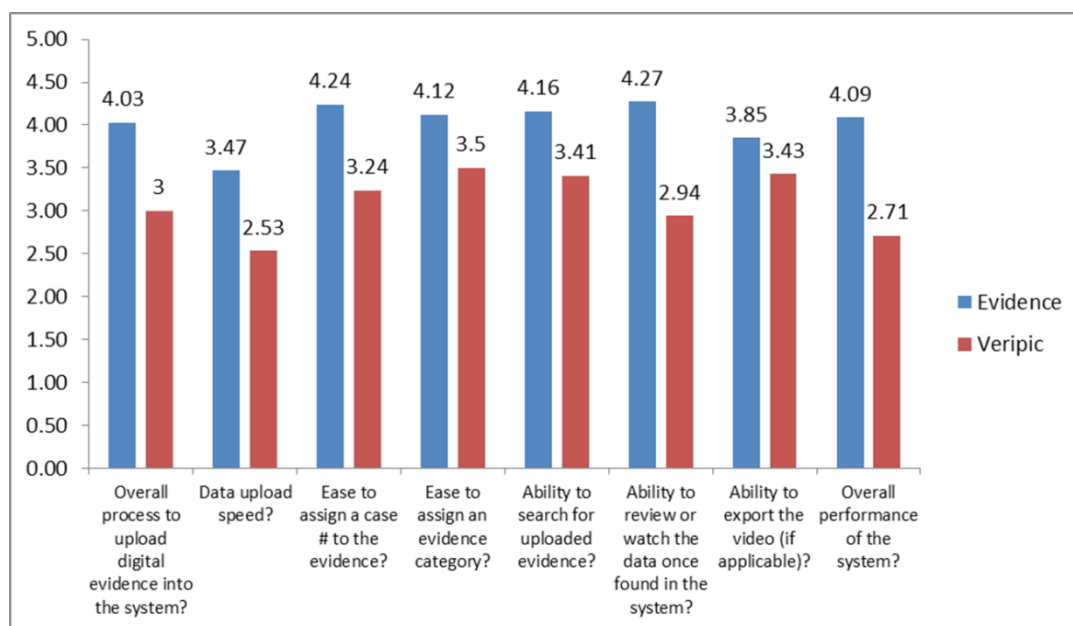
Responses	MPH	VieVu	Taser FLEX	Wolfcom
Ease of use?	3.22	4.73	4.21	2.82
Physical comfort?	4	4.13	3.86	2.73
Camera durability?	3.44	4.27	3.85	4.2
Clarity of video?	4.22	3.93	4.36	4.55
Clarity of night video?	2.67	2.11	3.67	4
Field of view?	3.67	3.2	3.64	4.18
Clarity of audio	3.56	3.93	3.79	4
Camera battery life?	2.67	4.13	4.5	3.64
Camera versatility?	2.89	3.73	4.21	3.55
Ease of video review?	4.25	2.71	4.58	3.9
Extracting video?	3.11	3.27	4.43	3.27
Overall performance?	2.78	3.73	3.93	3.27
Total Categories Won	0/12	3/12	5/12	4/12

Chart 2: Taser or VieVu Camera Consistently Ranked #1 or #2

Question	Top Rated	Runner-Up	Point Diff.
Camera durability?	VieVu	Wolfcom	.07
Clarity of audio captured?	Wolfcom	VieVu	.07
Physical comfort of wearing the camera?	VieVu	MPH	.13
Clarity of video captured?	Wolfcom	Taser	.19
Overall performance of the camera?	Taser	VieVu	.2
Clarity of night video captured?	Wolfcom	Taser	.33
Ease of video playback in the field?	Taser	MPH	.33
Camera battery life?	Taser	VieVu	.37
Camera versatility?	Taser	VieVu	.48
Field of view?	Wolfcom	MPH	.51
Ease of use of the camera?	VieVu	Taser	.52
Process for extracting video ?	Taser	VieVu	1.16

For the DEMS, eight categories were measured on a scale of 1-5, with 5 being the highest rating. Evidence.com outscored Veripic in each category.

Chart 3: DEMS Summary Results



Appendix D - Cost Savings

To accurately compare DEMS systems, an estimate of the time saved at the end of the officer's shift must be considered. One of the primary complaints about Veripic was the length of time that the officer would have to spend at the end of their shift uploading, categorizing, and attaching case IDs to digital evidence. A cost estimate of the savings of using Evidence.com is outlined below.

Yearly Cost Savings Estimate of using Evidence.com

Days camera used	156	156	156
Officer rate of pay \$/hr	\$50	\$50	\$50
Hours spent at end of shift	1	.5	.25
Total camera users	150	150	150
Total yearly cost savings	\$1,170,000	\$585,000	\$292,500

From the chart, even if we adjust the assumption so that an officer is spending an extra 15 minutes at the end of their shift uploading and categorizing video, the yearly cost savings of using Taser's Evidence.com over Veripic remains significant.

Appendix E – Additional Considerations

This section contains items that Executive staff should take into consideration when choosing a body worn camera and DEMS vendor.

Replacement costs

The financial model numbers shared in this report assume replacing the equipment once over a 5 year period. The complete model is included in this memo so that the executive committee can see how the costs change depending on how often the equipment is replaced.

Data retention

There are two full order (150 cameras) quotes from Taser attached to this final report. The quote for \$781,014 assumes that we will keep all video for a minimum of one year. This one year standard is a good balance between keeping relevant data for investigative purposes and not taxing the system that houses the data. The quote for \$630,185 uses the data retention model suggested by Taser which retains specific data categories for only 30 days. These are included to give Executive staff an idea of the cost difference between these two models.

Automatic upload feature expanding to other vendors

The marketplace of body worn cameras and DEMS is constantly evolving. This competition creates a copycat world where vendors race to offer features that are receiving positive feedback from end-users. The time saving feature of dock and go

offered by Taser was a huge difference between the vendors in the trial and the officers experienced the pain point of manually having to upload data at the conclusion on their shifts. Soon after the trial, VieVu and Veripic formed a partnership so that little to no user intervention would be needed to upload VieVu data to Veripic. This proves that innovation in this area is evolving and that this dock and go feature may become a mainstay in this marketplace.

Policy update required

This new technology will require an extensive policy in place prior to going live to govern the recording, review, and retention of digital evidence. As part of the research for this technology, a preliminary policy was created which merged ideas from a white paper provided by the ACLU, knowledge gained from attendance at the PERF conference, and Department feedback. Department feedback was solicited from the body worn camera evaluators, members of the PSTC, Internal Affairs Unit, the Special Investigations Lieutenant, and the Special Operations Lieutenant to help shape the preliminary policy. A review of other local agency policies was also conducted in an effort to gain insight into local practices.

At the time of this report, there has been no formal effort made to confer with the Police Officers' Association regarding the preliminary draft policy. However, the body worn camera evaluators are all active members of the Police Officers' Association with two of them as sitting POA board members. In this regard, it should be noted that due diligence was carried out on the front end of policy development to gain officer/field level insight, which is represented in the preliminary draft policy.

Cloud Storage Technology Security Risks

While cloud data vendors have numerous safeguards in place, storing digital evidence in the cloud does pose a security risk. Cloud based storage systems are a high profile target for hackers and other rogue entities. Data breaches or username and password theft are two highly likely risks that could occur when using cloud technology. Data retention policies as well as immediate contact with the vendor if such an incident occurs can mitigate these risks.